

Brutal Season Emphasizes Care In Grass Selection

By J. F. FOUDEK

THE PRESENT season has been one of the most trying that greenkeepers and others responsible for the condition of greens have had to endure. To have a green apparently in fine shape at sundown and then to stand and watch it turn brown the next day in spite of the application of all proven fungicides and copious quantities of water is discouraging.

Perhaps you noticed that it was said the green was "apparently" in fine shape. It is not always possible to tell by mere appearances that a green is in fine shape.

Grass, be it one of the bents, Kentucky

blue, or bamboo, reflects in itself something of the growing conditions to which it has been subjected. In this regard it is no different than any other living thing, except that it is perhaps more difficult to properly interpret the conditions reflected. It must be granted that growth conditions do have a marked influence upon grass and that to grow excellent grass requires controlling carefully each one of the growth factors. Allowing any one of the factors to become unfavorable may destroy much of the natural resistance of the grass and then the greenkeeper's troubles begin.

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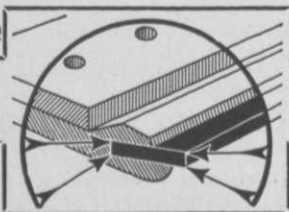
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Just what are the conditions which act as the most important growth factors and which must be controlled upon the golf course? They may be grouped under two heads, climate and soil. To regulate these two growth factors both direct and indirect methods are employed. It is readily apparent that little direct control can be exerted over climate and that the reverse is true in regard to soil conditions.

The principal direct control over climate that is utilized in the growth of grass is the artificial application of water. The grasses require a large quantity of water during each growing season and grow luxuriantly when it is available to them. If forced to live with but a small supply, their growth becomes slow and they may enter a semi-dormant condition until such a time as the moisture supply becomes plentiful.

Select Resistant Grass

In contrast to this method, an indirect control over climate is effected through the selection of types of grass adapted to the existing climatic conditions. Thus, the bent grasses, Kentucky blue grass, poa annua, the fescues, etc., are grown in the northern part of the United States and Bermuda and carpet grass in the southern. In the moister and cooler portions of the northern United States the first-named grasses do best, but require more and more care as the mean annual temperature becomes higher and the moisture becomes less farther south and west. A good example of this adaptation of the grasses to a given set of climatic conditions is apparent with poa annua when subjected to a cool and moist climate as compared with a climate in which the temperature may become high and the summer very dry. Thus in the Chicago area poa annua is not an especially satisfactory grass because it does not withstand the high temperatures and dry weather that frequently develop. During periods of unfavorable growing conditions this grass will be apt to suffer more severely than most of the others. This is probably due to the fact that poa annua naturally tends to have a short growing



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season and to play out by mid-summer. Therefore, it is weaker and less resistant during the months when growing conditions are most apt to be unfavorable. Other grasses, such as the bents, Kentucky blue, and the fescues, all of which persist throughout the summer as far south as Tennessee, do not have this natural weakness and are more resistant to very hot weather.

Equally as important as selecting types of grass adapted to a given set of climatic conditions is the control exerted over different soil properties. Since the plants are anchored within the soil and derive their food and moisture from it they are profoundly affected by its properties. The properties influencing plant growth are soil texture and structure, soil reaction, the organic content of the soil, soil moisture, and the supply of plant food in the soils. Each one of these lies within exact control if a knowledge is possessed of what is desired and of how it may be secured. In any case, creating in the soil especially congenial growth conditions is essential to the growth of excellent turf. Let any soil property become undesirable and the grass will be affected, sometimes to the extent

of making it very susceptible to injury by unfavorable external conditions.

Blames Pythium

It is probable that much of the trouble encountered this year by golf courses in many of the middle western states may be explained by the foregoing facts. To understand how this is possible it is necessary to determine what the specific cause of the trouble was. In many cases where greens were more or less completely destroyed within a period of one or two days the active agent was the pythium fungus. The manner in which this fungus acts is such as to lead many to the conclusion that the injury was produced by sun scald. In the first place, the fungus does not become especially active until the temperature rises about 93 or 94 degrees Fahrenheit. Therefore very hot days are necessary for it to do much damage. Secondly, the spores of the fungus or the bodies by which it reproduces, require a film of moisture upon the grass blades before they will germinate rapidly. Therefore, a humid day is especially favorable to rapid spreading of the fungus. The hotter the surface of a green becomes and the higher the humidity, often depending

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upon the extent to which there is free circulation of the air over the surface, the more rapid and complete the destruction of the grass. These conditions could easily be associated with sun scald injury.

Furthermore, sprinkling, topdressing and the incorrect application of the fungicides proven of value in controlling other fungus diseases may not lessen the injury because they may aid in spreading the fungus and provide the necessary excessive moisture on the blades of grass.

The condition of the grass is important because it is a factor in determining the extent to which the grass is susceptible to injury. Certain of the grasses are naturally more resistant to such types of injury and so generally suffer less. This is true especially of the creeping bents, Kentucky blue and the fescues. The mixed bents, poa annua and poa trivialis are very susceptible to injury and generally suffer first as well as more severely. With the last named grasses it is doubtless not entirely a question of their natural resistance to the attacks of the pythium fungus but also of their weakened condition during the middle of the summer.

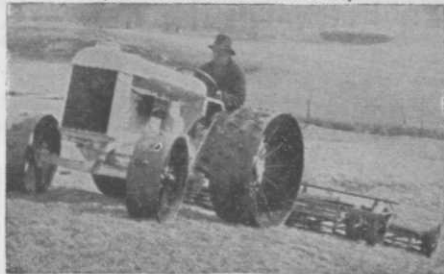
In some instances, even the creeping bents were severely injured this season. Whether in every case these grasses were not in exactly the best of condition cannot be said, but it is known that on a number of those greens suffering most the grass had not been given the growing conditions conducive to any great degree of resistance. In any growing season the cultural practices should be so regulated that the grass is made as vigorous and hardy as is possible. Much more can be accomplished in this direction than might at first appear. By combining these correct cultural methods and the selection of an acclimated grass with the necessary precautionary measures during times when the pythium fungus may become active will do a great deal to prevent such wholesale destruction another time.

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